

REMARKS

Claims 1-60 are pending in this application. Of these, claims 1, 16, 20, 21, 33, 36, 37, 49, and 52 are independent. Favorable reconsideration and further examination are respectfully requested.

Double Patenting

The Examiner rejected claims 53-54 and 57-58 as conflicting with claims 1-5 from Application No. 10/679,954. Applicant submits that claims 53-54 and 57-58 are different from claims 1-5 because claims 53-54 and claims 57-58 incorporate the limitations of claims 1 and 16, respectively, which are not included anywhere in claims 1-5 of Application No. 10/679,954. As the scope of claims 53-54 and 57-58 is different from that of claims 1-5, Applicant requests that the double patenting rejection be withdrawn.

Specification

On page 2 the Examiner objected to the specification for misspelling "MATLAB" as "MATHLAB". Applicant has amended the specification to correct this error. Applicant submits that no new matter has been entered.

Claim Objections

The Examiner objected to claim 13 for improperly depending on claim 10. Applicant has amended claim 13 to depend on claim 12.

Claim Rejections under 35 U.S.C. § 112

Claims 1 and 20 were rejected under 35 U.S.C. 112, second paragraph, as being incomplete for not specifying where the coefficients come from. Applicant has amended claims 1 and 20 to specify that the coefficients are determined from the input waveform.

Claims 21, 33, 36, 37, 49, and 52 were rejected under 35 U.S.C. 112, second paragraph, as being incomplete for not specifying where the coefficients were generated. Applicants have amended claims 21, 33, 36, 37, 49, and 52 to more clearly specify where the coefficients are generated.

Claims 1, 20, 21, 33, 36, 37, 49, and 52 were rejected under 35 U.S.C. 112, second paragraph, as being incomplete for not specifying where the data is being sent and received. Applicant has amended claims 1, 20, 21, 33, 36, 37, 49, and 52 to more clearly describe where the data is sent and received.

Claims 17-19 were rejected under 35 U.S.C. 112, second paragraph, for having insufficient antecedent basis for the language "wherein reconstructing further comprises." Applicant has amended claim 16, from which claims 17-19 depend, to include the feature of reconstructing. Therefore, claims 17-19 recite proper antecedent basis.

Claim Rejections under 35 U.S.C. § 101

Applicant has amended claims 1, 16 and 20 to call for a machine-implemented method.

In the Office Action, the claims were rejected under 35 U.S.C. §101 for allegedly being non-statutory. In particular, it was said in the Office Action that the claim must recite more than 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produced a real-world or tangible result. It was further said that the claims are missing a practical application and, therefore, the claims are non-statutory. Applicants respectfully disagree. As explained in the enclosed memorandum from John J. Love, Deputy Commissioner For Patent Examination Policy,

A practical application in this context can be the result itself, and does not require that steps or additional limitations be added to the claims...It is the result that should be the focus. If the result has a real world practical application/use,

then the test has been satisfied. *The claim need not include the uses to which the result is ultimately put, just the result itself.* (emphasis added)

In this case, each of the independent claims either sends or receives a subset of determined principal components and coefficients of an input waveform. The sending and/or receiving of principal components and coefficients has practical application (machine implement) in that they may be used to transmit and recover compressed speech signals at reduced bandwidths. Thus, the output result of the claims has a real world practical application/use, therefore, the test for practical applicability has been satisfied according to the Deputy Commissioner.

Claim Rejections under 35 U.S.C. § 102 and 103

Claims 1, 3, 5-8, 10-12, 21, 23, 25-28, 30-32, 37, 39, 41-44 and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Atal, U.S. Patent 4,764,963. Claims 2, 16-18, 20, 22, 33-36, 38 and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal.

Claims 4, 14-15, 24 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Chen et al., "Karbunen-Loeve Method for Data Compression and Speech Analysis."

Claims 9, 29 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Takebayashi et al., U.S. Patent 5,761,639.

Claims 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Martin, R., "Noise Power Spectral Density Estimation Based on Optimal Smoothing and Minimum Statistics."

Claims 53 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Baker., U.S. Patent 4,713,778.

Claims 54 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Baker, and further in view of Carleton et al., U.S. Patent 6,069,940.

Claims 55-56 and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atal in view of Farrett, U.S. Patent 5,636,325.

Claim 1 is directed to a method of compressing speech data and require “parsing an input waveform into pitch segments; determining principal components of at least one pitch segment; sending ... a subset of the determined principal components during an initial transmission period; and sending ... coefficients of the input waveform for each pitch segment during a period subsequent to the initial transmission period ...”

On page 7 of the Office Action, the Examiner equates the “speech event feature signal” described in col. 13, lines 5-8, of Atal with the coefficients of the input waveform for each pitch segment, recited in claim 1. Applicant submits that the speech event feature signal is nowhere described or suggested in Atal to be or include coefficients of the input waveform for each pitch segment. Rather, in the passage at col. 4, lines 20-23, Atal discloses that a speech event feature signal “corresponds to the features of the articulatory configuration of an individual sound occurring in the speech pattern.” Atal provides no clue as to whether the speech event feature are for a pitch segment.

Furthermore, even if the speech even feature signal of Atal could be considered to correspond to Applicant's claimed coefficients, which Applicant does not concede, Atal would still fail to disclose sending coefficients during a period subsequent to the initial transmission period (during which a subset of the determined principal components are sent).

Claim 1, therefore distinguishes over Atal.

Independent claims 20, 21, 36, 37, and 52 recite similar limitations to those of claim 1 and therefore distinguish over Atal for at least the foregoing reasons as claim 1.

Claim 16 recites “receiving a subset of determined principal components of at least one pitch segment during an initial transmission period; receiving coefficients of the input waveform for each pitch segment during a period subsequent to the initial transmission period; and reconstructing the input waveform ...”

On page 9 of the Office Action, the Examiner acknowledges that “Atal fails to distinctly disclose the receiving of a subset of principal components and coefficients;” however, the

Examiner asserts that since Atal discloses the transmission of feature signals in col. 4, lines 61-64, "it would have been inherent ... to receive signal components ..." The passage at col. 4, lines 61-64, has been reproduced below for reference: "The feature signals are then converted into a set of speech event or individual sound representative signals that are encoded at a lower bit rate for transmission or storage."

Applicant submits that even if the above passage could be construed to inherently include the step of receiving, Atal does not disclose or suggest receiving coefficients of the input waveform for each pitch segment during a period subsequent to an initial transmission period during which principal components were sent. As described above with respect to claim 1, Atal does not disclose or suggest coefficients of the input waveform for each pitch segment, as the feature signals are nowhere disclosed or suggested to be of an input waveform for each pitch segment. Claim 16 therefore distinguishes over Atal.

Claims 33 and 49 recite limitations that are similar to those of claim 16 and therefore distinguish over Atal for at least the same reasons as claim 16.

None of the other art relied upon for the other 103 rejections discloses or suggests anything that would remedy the foregoing deficiencies of Atal with respect to the independent claims. As such the independent claims are patentable over the applied art.

Each of the dependent claims is also believed to define patentable features of the invention. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, has not been discussed specifically herein.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claims, except as specifically stated in this paper, and the amendment of any claims does not necessarily signify concession of unpatentability of the claim prior to its amendment.

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In view of the foregoing amendments and remarks, Applicant respectfully submits that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned agent can be reached at the address shown below. All telephone calls should be directed to the undersigned at 617-521-7012.

Enclosed is a three-month Petition for Extension of Time Fee, please apply any other charges or credits to deposit account 06-1050 referencing Attorney Docket No. 14501-002001.

Respectfully submitted,

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